In the Claims:

1. (Previously presented) A method of processing an auscultation signal, said auscultation signal being divided into a plurality of signal segments each having an individual duration of time and extending between a zero crossing in a positive or negative direction and a next zero crossing in the same positive or negative direction, said signal segments being processed into an output signal of successive signal segments, said signal segments being processed such that at least one of the signal segments is repeated at least once in said output signal, the method comprising:

analyzing the duration time of each signal segment and subjecting those signal segments that exceed a limit of 50 ms to a processing that increases the number of zero crossings during its individual duration of time so as to convert those signal segments that exceed said limit into a greater number of signal segments of a shorter duration, ~~and~~ such that echo perception from the auscultation signal is reduced.

2. (Previously presented) The method of processing an auscultation signal according to claim 1, further comprising:

iteratively performing said processing until the duration of time of substantially all of the signal segments of the auscultation signal is less than the limit of 50 ms.

3. (Previously presented) The method of processing an auscultation signal according to claim 2, further comprising:

terminating the iterative processing when the auscultation signal does not comprise signal segments having a duration of time which is longer than the limit of 50 ms.

4. (Currently Amended) The method of processing an auscultation signal according to claim 2, [[1,]] the duration ~~limit~~ being less than 40 ms.

5. (Previously presented) The method of processing an auscultation signal according to claim 1,

wherein said processing comprises iteratively pre-filtering the auscultation signal with a high-pass filter until the duration of time of substantially all of said signal segments is less than the limit of 50 ms.

6. (Previously presented) The method of processing an auscultation signal according to claim 5, further comprising:

iteratively post-filtering the output signal with a filter having a transfer function corresponding to an inverse amplitude transfer function of the high-pass filter.

7. (Previously presented) The method of processing an auscultation signal according to claim 3, further comprising:

terminating the iterative filtering when the auscultation signal has been filtered a specified number of times and that an indicator signal indicating termination of the filtering process is provided.

8. (Previously presented) The method of processing an auscultation signal according to claim 1, further comprising:

patching signal segments having a relatively short duration of time together to form a coherent segment comprising at least three zero-crossings, the coherent segment being repeated at least once.

9. (Canceled).

10. (Previously presented) The method of processing an auscultation signal according to claim 1, wherein gradients of neighboring signal segments of the output signal are substantially equal, the neighboring signal segments being level-compensated.

11. (Previously presented) The method of processing an auscultation signal according to claim 1, further comprising:

one of multiplying the signal divided segments and filtering the signal divided segments using a window function to level transitions between neighboring signal segments.

12. (Previously presented) The method of processing an auscultation signal according to claim 1, further comprising:

reversing signal segments in the output signal in time.

13. (Previously presented) The method of processing an auscultation signal according to claim 1, further comprising:

mirroring signal segments in the output signal about a time axis.

14. (Previously presented) The method of processing an auscultation signal according to claim 1, further comprising:

pre-filtering the auscultation signal using a high-pass filter to obtain further zero crossings.

15. (Previously presented) An a apparatus for processing an auscultation signal, the apparatus comprising:

a signal processing unit that divides the auscultation signal into a plurality of signal segments, each segment having an individual duration of time and extending between a zero crossing in a positive or negative direction and a next zero crossing in the same positive or negative direction, said signal segments being processed into an output signal of successive signal segments such that at least one signal segment is repeated at least once in said output signal,

the signal processing unit analyzing the duration time of each signal segment and subjecting those signal segments that exceed a limit of 50 ms to a processing that increases the number of zero crossings during its individual duration of time so as to convert those signal segments that exceed said limit into a greater number of signal segments of a shorter duration, such that echo perception from the auscultation signal is reduced.

16. (Previously presented) The apparatus according to claim 15 wherein the signal processing unit is adapted to perform said processing until the duration of time of substantially all of the signal segments is less than the limit of 50 ms.

17. (Previously presented) The apparatus according to claim 16, wherein the signal processing unit is adapted to interrupt said processing none of said signal segments have a duration of time which is longer than the limit of 50 ms.

18. (Currently Amended) The apparatus according to claim 16, [[15,]] the duration ~~limit~~ being less than 40 ms.

19. (Previously presented) The apparatus according to claim 15, further comprising:

a high-pass filter that iteratively pre-filters the auscultation signal until the duration of time of substantially all of said signal segments is less than the limit of 50 ms.

20. (Previously presented) The apparatus according to claim 19, further comprising:

a post-filter having an amplitude transfer function corresponding to an inverse amplitude transfer function of the high-pass filter that post-filters the auscultation signal.

21. (Previously presented) The apparatus according to claim 19, wherein the iterative pre-filtering by said high-pass filter is interrupted when the auscultation signal has been filtered a specified number of times and wherein an indicator signal indicating termination of the iterative pre-filtering is provided.

22. (Canceled).

23. (Canceled).

24. (Previously presented) The apparatus according to claim 15, the signal processing unit dividing the auscultation signal into signal segments such that gradients of neighboring signal segments of the output signal are substantially equal, and such that the neighboring signal segments are level-compensated.

25. (Previously presented) An apparatus according to claim 15, the signal processing unit performs one of multiplying the signal divided segments and filtering the signal divided segments using a window function to level transitions between neighboring signal segments.

26. (Previously presented) The apparatus according to claim 15, the signal processing unit reversing the signal segments in the output signal in time.

27. (Previously presented) The apparatus according to claim 15, the signal processing unit mirroring the signal segments in the output signal about a time axis.

28. (Previously presented) The apparatus according to claim 15, further comprising:

a high-pass filter that pre-filters the auscultation signal to obtain said greater number of signal segments of shorter duration.

29. (Previously presented) An electronic stethoscope comprising:

at least one input transducer;

at least one output transducer; and

a signal processing unit divides an input signal in time into a plurality of signal segments, each segment having an individual duration of time, said signal segments being processed into an output signal of successive signal segments such that at least one signal segment is repeated at least once in said output signal,

the signal processing unit processing the auscultation signal to analyze the duration of time of each signal segment and subjecting those signal segments that exceed a limit of 50 ms to a processing that increases the number of zero crossings during its individual duration of time so as to convert those signal segments that exceed said limit into a greater number of signal segments of a shorter duration, such that echo perception from the auscultation signal is reduced.

said at least one output transducer reproducing said output signal.